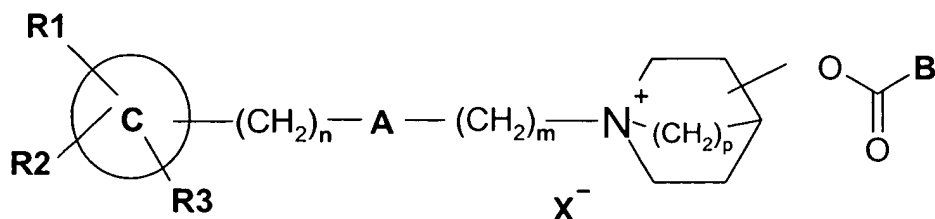


CLAIMS

1. A compound according to formula (I)

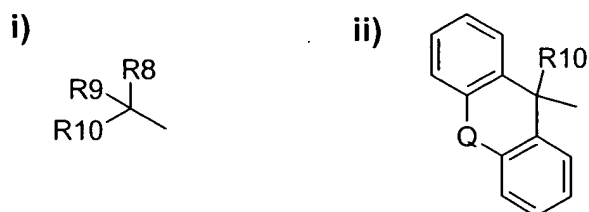
(I)



5 wherein:

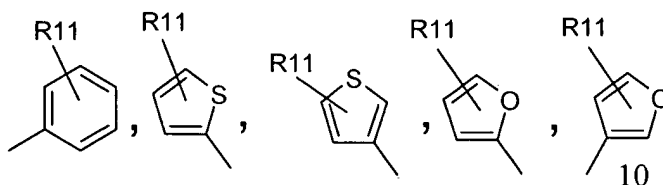
- © is a phenyl ring, a C₄ to C₉ heteroaromatic compound containing one or more heteroatoms or a naphthalenyl, 5,6,7,8-tetrahydronaphthalenyl or biphenyl group;
- R¹, R² and R³ each independently represent a hydrogen atom or
 10 halogen atom, or a hydroxy group, or a phenyl, -OR⁴, -SR⁴, -NR⁴R⁵, -NHCOR⁴, -CONR⁴R⁵, -CN, -NO₂, -COOR⁴ or -CF₃ group, or a straight or branched lower alkyl group which may optionally be substituted, for example, with a hydroxy or alkoxy group, wherein R⁴ and R⁵ each independently represent a hydrogen atom,
 15 straight or branched lower alkyl group or together form an alicyclic ring; or R¹ and R² together form an aromatic, alicyclic or heterocyclic ring,
- n is an integer from 0 to 4;
- A represents a -CH₂-, -CH=CR⁶-, -CR⁶=CH-, -CR⁶R⁷-, -CO-, -O-, -S-,
 20 -S(O)-, SO₂ or -NR⁶- group, wherein R⁶ and R⁷ each independently represent a hydrogen atom, straight or branched lower alkyl group or R⁶ and R⁷ together form an alicyclic ring;
- m is an integer from 0 to 8; provided that when m = 0, A is not -CH₂-;
- 25 p is an integer from 1 to 2 and the substitution in the azoniabicyclic ring may be in the 2, 3 or 4 position including

all possible configurations of the asymmetric carbons;
B represents a group of formula i) or ii):





(I)

- 5 wherein R¹⁰ represents a hydrogen atom, a hydroxy or methyl group;
and R⁸ and R⁹ each independently represent



- wherein R¹¹ represents a hydrogen or halogen atom or a straight
or branched lower alkyl group and Q represents a single bond, -
CH₂-, -CH₂-CH₂-, -O-, -O-CH₂-, -S-, -S-CH₂- or -CH=CH-; and
X represents a pharmaceutically acceptable anion of a mono or
15 polyvalent acid.

2. A compound according to claim 1, wherein any alkyl
group present as R¹ to R⁷ or R¹¹ contains from 1 to 4 carbon
atoms.
3. A compound according to claim 1 or 2 wherein p=2.
- 20 4. A compound according to any one of the preceding
claims wherein  represents a phenyl, pyrrolyl, thienyl, furyl,
biphenyl, naphthalenyl, 5,6,7,8-tetrahydronaphthalenyl,
benzo[1,3]dioxolyl, imidazolyl or benzothiazolyl group.
5. A compound according to claim 4, wherein 
- 25 represents a phenyl, pyrrolyl or thienyl group.
6. A compound according to any one of the preceding

claims wherein R^1 , R^2 and R^3 each independently represent a hydrogen or halogen atom or a hydroxy, methyl, tert-butyl, -CH₂OH, 3-hydroxypropyl, -OMe, -NMe₂, -NHCOMe, -CONH₂, -CN, -NO₂, -COOMe or -CF₃ group.

5 7. A compound according to claim 6 wherein R^1 , R^2 and R^3 each independently represent a hydrogen or halogen atom or a hydroxy group.

 8. A compound according to claim 7, wherein the halogen atom is fluorine.

10 9. A compound according to any one of the preceding claims wherein A represents a -CH₂-, -CH=CH-, -CO-, -NH-, -NMe-, -O- or -S- group; n is 0 or 1; and m is an integer from 1 to 6.

 10. A compound according to claim 9, wherein A represents a -CH₂-, -CH=CH- or -O- group and m is 1, 2 or 3.

15 11. A compound according to any one of the preceding claims wherein the azoniabicyclo group is substituted on the nitrogen atom with a 3-phenoxypropyl, 2-phenoxyethyl, 3-phenylallyl, phenethyl, 3-phenylpropyl, 4-phenylbutyl, 3-(2-hydroxyphenoxy)propyl, 3-(4-fluorophenoxy)propyl, 2-
20 benzyloxyethyl, 3-pyrrol-1-ylpropyl, 2-thien-2-ylethyl or 3-thien-2-ylpropyl group.

 12. A compound according to any one of the preceding claims wherein B represents a group of formula (i) and R^8 and R^9 each independently represent a phenyl, 2-thienyl, 3-thienyl, 2-
25 furyl, or 3-furyl group and R^{11} represents a hydrogen atom.

 13. A compound according to any one of claims 1 to 11, wherein B represents a group of formula (ii) and Q represents a single bond, a -CH₂-, -CH₂-CH₂- group or an oxygen atom.

 14. A compound according to any one of the preceding
30 claims wherein X represents a bromide, chloride or trifluoroacetate anion.

 15. A compound according to any one of the preceding claims wherein the azoniabicyclo group is substituted in the 3-

position.

16. A compound according to claim 15, wherein the substituent in the 3 position has (R) configuration.

17. A compound according to claim 16, wherein R⁸ is different from R⁹ in group i), and the asymmetric carbon to which R⁸ and R⁹ are bonded has the (R) configuration.

18. A compound according to claim 16, wherein R⁸ is different from R⁹ in group i), and the asymmetric carbon to which R⁸ and R⁹ are bonded has the (S) configuration.

19. A compound according to any one of the preceding claims which is a single isomer.

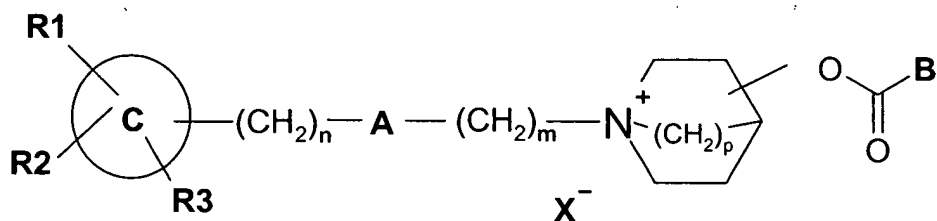
20. A compound according to claim 1 which is
3(R)-Diphenylacetoxy-1-(3-phenoxy-propyl)-1-
azoniabicyclo[2.2.2]octane; bromide
3(R)-(2-Hydroxy-2,2-diphenyl-acetoxy)-1-(3-phenoxypropyl)-1-
azoniabicyclo[2.2.2]octane; bromide
3(R)-(2,2-Diphenylpropionyloxy)-1-(3-phenoxypropyl)-1-
azoniabicyclo[2.2.2]octane; bromide
3(R)-(2-Hydroxy-2-phenyl-2-thien-2-yl-acetoxy)-1-(3-
phenoxypropyl)-1-azonia-bicyclo[2.2.2]octane; bromide
3(R)-(2-Furan-2-yl-2-hydroxy-2-phenylacetoxy)-1-(3-phenylallyl)-
1-azoniabicyclo[2.2.2]octane; bromide
3(R)-(2-Furan-2-yl-2-hydroxy-2-phenylacetoxy)-1-(2-phenoxyethyl)-
1-azoniabicyclo[2.2.2]octane; bromide
3(R)-(2-Furan-2-yl-2-hydroxy-2-phenylacetoxy)-1-(3-
phenoxypropyl)-1-azoniabicyclo[2.2.2]octane; bromide
3(R)-(2,2-Dithien-2-ylacetoxy)-1-(3-phenoxypropyl)-1-
azoniabicyclo[2.2.2]octane; bromide
3(R)-(2-Hydroxy-2,2-di-thien-2-ylacetoxy)-1-phenethyl-1-
azoniabicyclo[2.2.2]octane; bromide
3(R)-(2-Hydroxy-2,2-di-thien-2-ylacetoxy)-1-(4-phenylbutyl)-1-
azoniabicyclo[2.2.2]octane; bromide
3(R)-(2-Hydroxy-2,2-dithien-2-ylacetoxy)-1-(3-phenoxypropyl)-1-

azonia-bicyclo[2.2.2]octane; bromide
 1-[3-(4-Fluorophenoxy)propyl]-3(R)-(2-hydroxy-2,2-dithien-2-ylacetox-
 y)-1-azoniabicyclo[2.2.2]octane; chloride
 3(R)-(2-Hydroxy-2,2-dithien-2-ylacetox)-1-[3-(2-hydroxyphenoxy)pro-
 5 pyl]-1-azoniabicyclo[2.2.2]octane; trifluoroacetate
 3(R)-(2-Hydroxy-2,2-dithien-2-ylacetox)-1-(3-pyrrol-1-ylpropyl)-
 1-azonia-bicyclo[2.2.2]octane; trifluoroacetate
 3(R)-(2-Hydroxy-2,2-dithien-2-ylacetox)-1-(2-thien-2-ylethyl)-1-a-
 azo niabicyclo[2.2.2]octane; bromide
 10 3(R)-(2-Hydroxy-2,2-dithien-2-ylacetox)-1-(3-thien-2-ylpropyl)-1-
 -a zoniabicyclo[2.2.2]octane; bromide
 1-(2-Benzoyloxyethyl)-3(R)-(2-hydroxy-2,2-dithien-2-ylacetox)-1-a
 zoniabicyclo[2.2.2]octane; trifluoroacetate
 3(R)-(2-Hydroxy-2,2-dithien-3-ylacetox)-1-(3-phenoxypropyl)-1-az
 15 oniabicyclo[2.2.2]octane; bromide
 1-(3-phenylallyl)-3(R)-(9-Hydroxy-9[H]-fluorene-9-carbonyloxy)-1-
 azoniabicyclo[2.2.2]octane; bromide
 3(R)-(9-Hydroxy-9[H]-fluorene-9-carbonyloxy)-1-(3-phenoxypropyl)-
 1-azoniabicyclo[2.2.2]octane; bromide
 20 3(R)-(9-Hydroxy-9[H]-fluorene-9-carbonyloxy)-1-phenethyl-1-azonia
 bicyclo[2.2.2]octane; bromide
 3(R)-(9-Hydroxy-9H-fluorene-9-carbonyloxy)-1-(3-thien-2-ylpropyl)-
 1-azoniabicyclo[2.2.2]octane; bromide
 3(R)-(9-Methyl-9[H]-fluorene-9-carbonyloxy)-1-(3-phenylallyl)-1-a
 25 zonia bicyclo[2.2.2]octane; bromide
 3(R)-(9-Methyl-9[H]-fluorene-9-carbonyloxy)-1-(3-phenoxypropyl)-1-
 -azo niabicyclo[2.2.2]octane; bromide
 1-(4-Phenylbutyl)-3(R)-(9[H]-xanthene-9-carbonyloxy)-1-azoniabicy-
 clo [2.2.2]octane; bromide
 30 1-(2-Phenoxyethyl)-3(R)-(9[H]-xanthene-9-carbonyloxy)-1-azoniabicy-
 cyclo [2.2.2]octane; bromide
 1-(3-Phenoxypropyl)-3(R)-(9[H]-xanthene-9-carbonyloxy)-1-azoniabi-
 cyclo [2.2.2]octane; bromide

- 1-Phenethyl-3(R) - (9[H] -xanthene-9-carbonyloxy) -1-azoniabicyclo[2.2.2] octane; bromide
 3(R) - (9-Hydroxy-9[H] -xanthene-9-carbonyloxy) -1- (3-phenoxypropyl) -
 1- azoniabicyclo[2.2.2]octane; bromide
 5 3(R) - (9-Hydroxy-9[H] -xanthene-9-carbonyloxy) -1-phenethyl-1-azonia
 bicy clo[2.2.2]octane; bromide
 3(R) - (9-Hydroxy-9H-xanthene-9-carbonyloxy) -1- (3-thien-2-ylpropyl) -
 -1-azoniabicyclo[2.2.2]octane; bromide or
 3(R) - (9-Methyl-9[H] -xanthene-9-carbonyloxy) -1- (3-phenoxy-propyl) -
 10 1-azonia-bicyclo[2.2.2]octane; bromide

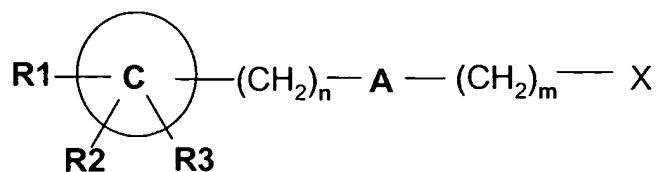
21. A compound according to any one of the preceding
 claims characterised in that it has an IC_{50} value for muscarinic
 M_3 receptors (Hm3) of less than 35 nM.

22. A process for the preparation of a compound of formula
 15 (I)



(I)

which comprises reacting an alkylating agent of formula (II)

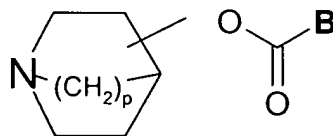


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(II)

with a compound of formula (III)

10



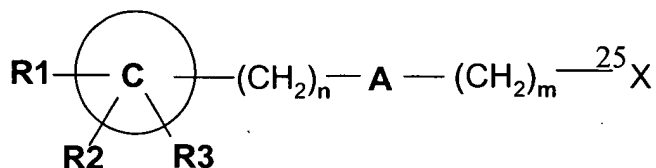
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(III)

wherein, in each of formulae I, II and III, R^1 , R^2 , R^3 , C , A, X, B, n, m and p are as defined in any one of claims 1 to 20.

23. A process according to claim 22 characterised in that
20 the resulting reaction mixture is purified by solid phase extraction.

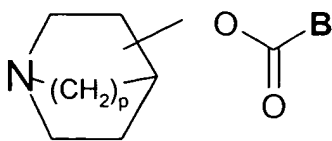
24. A compound of formula (II)



(II)

30 wherein R^1 , R^2 , R^3 , C , A, X, n and m are as defined in any one of claims 1, 2, 4 to 11, 14 or 20.

25. A compound of formula (III)



5

(III)

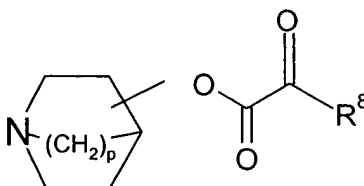
wherein B and p are as defined in any one of claims 1 to 3, 12, 13 or 15 to 20, and having the (R)- configuration.

10

26. A compound according to claim 25 which is 9-Methyl-9[H]-fluorene-9-carboxylic acid 1-azabicyclo[2.2.2]oct-3(R)-yl ester; 9-Methyl-9[H]-xanthene-9-carboxylic acid 1-azabicyclo[2.2.2]oct-3(R)-yl ester; 2-Hydroxy-2,2-difuran-2-yl-acetic acid -azabicyclo[2.2.2]oct-3(R)-yl ester.

15

27. A compound of formula (VII)



20

(VII)

wherein p and R⁸ are as defined in any one of claims 1 to 3 or 12.

25

28. A compound according to claim 27, wherein R⁸ is a 2-thienyl or 2-furyl group.

30

29. A compound according to claim 27 which is Oxothien-2-yl-acetic acid 1-azabicyclo[2.2.2]oct-3(R)-yl ester; or Oxofuran-2-yl-acetic acid 1-azabicyclo[2.2.2]oct-3(R)-yl ester.

30. Use of a compound according to any one of claims 24 to 29 in a process for producing a compound of formula (I) as defined in any one of claims 1 to 20.

31. A pharmaceutical composition comprising a compound according to any one of claims 1 to 21 in admixture with a pharmaceutically acceptable carrier or diluent.

5 32. A compound according to any one of claims 1 to 21, or a pharmaceutical composition according to claim 31 for use in a method of treatment of the human or animal body by therapy.

33. Use of a compound according to any one of claims 1 to 21, or a pharmaceutical composition according to claim 31 for the manufacture of a medicament for use in the treatment of
10 respiratory, urinary or gastrointestinal disease.

34. Use of a compound according to any one of claims 1 to 21 or a pharmaceutical composition according to claim 31 for the manufacture of a medicament for use in the treatment of COPD, chronic bronchitis, asthma and rhinitis.

15 35. A method for treating respiratory, urinary and/or gastrointestinal disease which method comprises administering to a human or animal patient in need of such treatment an effective amount of a compound according to any one of claims 1 to 21 or of a pharmaceutical composition according to claim 31.

20